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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,655

02/01/2006

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MAM074

7530

20374 7590 01/25/2010
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EXAMINER

APICELLA, KARIE O

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

01/25/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,655	Applicant(s) TODE ET AL.	
	Examiner Karie O'Neill Apicella	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7-9,11 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7-9,11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The Applicant's after final arguments filed on December 31, 2009, were received. The Final Action dated November 2, 2009 has been withdrawn. None of the claims have been amended. Claims 4, 6, 10 and 13-16 have been cancelled. Therefore, Claims 1-3, 5, 7-9 and 11-12 are pending in this office action.

Claim Rejections - 35 USC § 102

2. The rejection of Claims 1, 7 and 8 under 35 U.S.C. 102(b) as being anticipated by Okabe et al. (JP 2003-031219) is overcome based on the arguments presented on pages 2-3 of the Remarks dated December 31, 2009.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 7 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohzuku et al. (US 2004/0126660 A1).

With regard to Claim 1, Ohzuku et al. discloses a non-aqueous electrolyte secondary battery which has a positive electrode containing a positive active material, a negative electrode containing a negative active material and a non-aqueous electrolyte solution (see abstract), said secondary battery being characterized in that said positive active material comprises a lithium transition metal complex oxide represented by a

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chemical formula: $\text{Li}_a\text{Mn}_x\text{Ni}_y\text{Co}_z\text{O}_2$ (a, x, y and z satisfy $0 \leq a \leq 1.2$, $x+y+z = 1$, $0 < x \leq 0.5$, $0 < y \leq 0.5$ and $z \geq 0$), for example, Example 1-2 in which the positive active material is represented by $\text{Li}[\text{Li}_{0.03}(\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3})_{0.97}]\text{O}_2$. Ohzuku et al. also discloses wherein the positive active material further comprises zirconium in the amount by mole of from 0.05% to 20%, based on the total amount of said transition metals, satisfying the limitation of zirconium being present in an amount of 0.1% to 1% mole based on the total amount of said transition metals (Table 5 and paragraph 0182).

With regard to Claim 2, Ohzuku et al. discloses wherein said positive electrode in a fully charged state has a potential of at least 4.5 V (vs. Li/Li^+) (paragraphs 0083-0084). Ohzuku et al. discloses wherein the battery was overcharged to 4.8V (paragraph 0181).

With regard to Claim 3, Ohzuku et al. discloses a non-aqueous electrolyte secondary battery which has a positive electrode containing a positive active material, a negative electrode containing a graphite material as a negative active material (paragraphs 0114-0117) and a non-aqueous electrolyte (see abstract). Ohzuku et al. discloses wherein the non-aqueous electrolyte secondary battery is designed to be charged with an end-charge-voltage of at least 4.4V, for example it is overcharged to 4.8V (paragraph 0181). Ohzuku et al. also discloses wherein said positive active material comprises a lithium transition metal complex oxide represented by a chemical formula: $\text{Li}_a\text{Mn}_x\text{Ni}_y\text{Co}_z\text{O}_2$ (a, x, y and z satisfy $0 \leq a \leq 1.2$, $x+y+z = 1$, $0 < x \leq 0.5$, $0 < y \leq 0.5$ and $z \geq 0$), for example, Example 1-2 in which the positive active material is represented by $\text{Li}[\text{Li}_{0.03}(\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3})_{0.97}]\text{O}_2$. Ohzuku et al. also discloses wherein the positive active

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material further comprises zirconium in the amount by mole of from 0.05% to 20%, based on the total amount of said transition metals, satisfying the limitation of zirconium being present in an amount of 0.1% to 1% mole based on the total amount of said transition metals (Table 5 and paragraph 0182).

With regard to Claims 7 and 11, Ohzuku et al. discloses wherein said lithium transition metal complex oxide contains substantially the same amount of Ni and Mn (paragraph 0056 and Example 1-2).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzuku et al. (US 2004/0126660 A1), as applied to Claims 1-3, 7 and 11 above, and in further view of Uemura et al. (US 2002/0012830 A1).

Ohzuku et al. discloses the non-aqueous electrolyte secondary battery in paragraph 4 above, but does not disclose wherein a ratio in capacity of said negative electrode to said positive electrode (negative electrode/positive electrode) in their portions opposed to each other is in the range of 1.0 - 1.3.

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Uemura et al. discloses a rechargeable lithium battery including a positive electrode with a positive active material made of a layered lithium manganese complex oxide, such as $\text{Li}_{2/3}\text{Mn}_{1/2}\text{Ni}_{1/2}\text{O}_2$ (paragraphs 0035 and 0041). Uemura et al. also discloses a capacity balance ratio B/A of the total capacity B of the negative electrode material to the total capacity A of the positive electrode material is preferably fixed at a range of 1 to 1.5. At the time of the invention it would have been obvious to one of ordinary skill in the art to have a ratio capacity of said negative electrode to positive electrode in the range of 1.0-1.5 in the battery of Ohzuku et al., because Uemura et al. teaches that if the capacity balance ratio B/A is below 1, lithium ion holding sites on the negative electrode material become insufficient. As the result, branch-shaped or needle-shaped crystal (dendrite crystal) tends to occur during the charge to cause a short circuit phenomenon between the positive electrode and the negative electrode. If the capacity balance ratio B/A exceeds 1.5, negative electrode sites that do not contribute to the charge-discharge are increased, leading to the wasteful use of materials (paragraph 0033).

7. Claims 8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohzuku et al. (US 2004/0126660 A1), as applied to Claims 1-3, 7 and 11 above, and in further view of Okabe et al. (JP 2003-031219).

Ohzuku et al. discloses the non-aqueous electrolyte secondary battery in paragraph 4 above, but does not disclose wherein the positive active material has a specific surface area of $0.1\text{-}2.0\text{ m}^2/\text{g}$.

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Okabe et al. discloses a non-aqueous electrolyte secondary battery which has a positive electrode containing a positive active material, a negative electrode containing a negative active material and a non-aqueous electrolyte solution (paragraphs 0006 and 0016), said secondary battery being characterized in that said positive active material comprises a lithium transition metal complex oxide, represented by the formula $\text{Li}_{1+a}\text{Mn}_x\text{Ni}_y\text{Co}_z\text{M}_b\text{O}_2$, wherein M is an element other than Li, Mn, Ni, or Co, and $0 \leq a \leq 0.1$, $-0.1 \leq x-y \leq 0.1$, $y \leq x+z+b$, $0 < z \leq 0.4$, $0.3 \leq y$, $0.3 \leq x$, and $x+y+z+b=1$. Okabe et al. further discloses wherein said positive active material has a specific surface area of 0.3-1.5m²/g (paragraph 0028). At the time of the invention it would have been obvious to one of ordinary skill in the art to use a positive active material having a specific surface area of 0.3-1.5m²/g in the battery of Ohzuku et al., because Okabe teaches that a specific surface area in this range provides a high rate discharging characteristic and a high cycle performance can be obtained (paragraph 0028).

Response to Arguments

8. Applicant's arguments with respect to claims 1-3, 5, 7-9 and 11-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karie O'Neill Apicella whose telephone number is (571)272-8614. The examiner can normally be reached on Monday through Friday from 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795

Karie O'Neill Apicella
Examiner
Art Unit 1795

KOA